



# Pioneer Elite™ VSX-56TXi

## Home Theatre Receiver



John Kotches

### Mid-Priced Receiver With Punch And Performance

Pioneer Electronics has been a staple of the audio industry for many years and traces its ancestry back to the late 1930s as Fukuin Shokai Denki Seisakusho. In this company's long career in the audio industry, the number of first products to the market is substantial. Pioneer was the flag bearer for the LaserDisc format, which had a near 20-year reign as the format of choice for videophiles. Even in the DVD era of consumer electronics, Pioneer lays claim to the first Universal Disc player, in their DV-AX10. The DV-AX10 was the first of many universal players, and several years later a large number of the universal players on the market are based on Pioneer's OEM kits.

*"This \$1,700 product's warm, rich sonic character does an excellent job in conveying the message."*

Pioneer's Elite Line is their premium lineup of audio/video products. It is in the Elite line that Pioneer's technological advancements are first brought to the marketplace. Pioneer continues to be a leader in delivering FireWire®/i.Link® (IEEE 1394) products to the market, and the VSX-56TXi receiver is their fourth receiver equipped with this interface for transferring digital audio. Another technological advancement included in the VSX-56TXi is Pioneer's Multi-Channel Acoustic Correction Circuit, which is a DSP-based room calibration and correction tool. Originally introduced in the VSX-49TX, MCACC™ has now trickled down in some form or another into a large portion of Pioneer's product lineup.

### Exterior Construction And Connectivity

The Elite line carries Pioneer's Urishi finish, which is an elegant gloss black finish on a thick aluminum faceplate. I'm generally a fan of silver over black on components, but the Urishi is one that could convince me to change my cosmetic preferences. As our home theatre

## SPECIFICATIONS

Inputs: A/V (4 Composite/S-Video/Stereo Audio), Audio (4 including MM Phono), Component Video (2 assignable), Eight Channel Analog (1), Digital Audio (2 Optical, 2 Coaxial all assignable)  
Outputs: Speaker Level (Front, Center, Back Surround/Zone 2, Surrounds), Line Level (Front, Center, Surround, Back Surround, Multi-room/Source), Component Video (1), Monitor (1 Composite/S-Video), Monitor 2 (Composite), Digital Audio (2 Optical), Audio Tape Loops (2 Stereo), Video Tape Loops (2 Composite/S-Video/Stereo Audio)  
Listening Modes: Dolby Digital, Dolby Digital EX, Dolby Pro-Logic II, DTS, DTS-ES (Discrete and Matrix), DTS: Neo6, DTS 24/96, PCM (to 24-bit/96 kHz), Numerous DSP Modes  
Power Output (Rated): 110watts x7 (8 ohms, 20 Hz-20 kHz < 0.09% THD)  
Video Stage (Component): 5-100 MHz (+0, -3 dB)  
Dimensions (WHD In Inches): 16 9/16 x 7 7/16 x 18 5/16  
Weight (In Pounds): 45  
Price: \$1,700

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products become more complex, the number of buttons on the faceplates seems to be growing exponentially with each year. The VSX-56TXi has a clean, symmetrical look, with identical-sized large knobs on either side of the faceplate, along with three buttons above each knob. The rest of the buttons and front panel inputs are hidden below the drop-down front panel with the Elite logo on it. This hides lesser-used controls and the microphone input for Pioneer's MCACC technology. I will discuss MCACC later in this review.

I was somewhat surprised by the heft of the VSX-56TXi, which weighs in at 45 pounds. Unusual in the under \$2,000 price point, the VSX-56TXi has a dual-layer chassis, with an aluminum exterior, and a copper interior to improve noise shielding and stray EMI from entering and exiting the receiver. The chassis is deeper than it is



wide, so those of you interested in purchasing should be sure that your equipment rack can handle its 18 5/16-inch depth.

The back panel is somewhat sparsely appointed in terms of digital connectivity. I feel that the number of digital inputs should be larger than provided for a component at this price level, since our systems are introducing more digital sources as time marches forward. Provided are two TOSLink optical inputs, with default assignments of TV/Sat and CD-R/Tape 1. Two S/PDIF coaxial digital inputs are on the back panel, with default assignments of DVD/LD and CD also available. Should you be blessed with a mismatch, a converter will need to be employed. Upping both digital input connectors to three of each would likely handle most end-user environments where the VSX-56TXi is used.

Analog-only inputs for line-level audio sources are also a bit shy but not to the point of being troubling. Three stereo analog audio-only inputs are provided for CD-R, MD/Tape and CD. In addition, those with LP playback capability will be pleased to find an MM-capable phono stage, with grounding also provided. There are four A/V inputs provided and each has stereo audio, composite, and S-video connectivity. A pair of assignable component video inputs is also available. A single set of multichannel analog inputs (7.1) are also included so that a single multichannel disc player can be connected via analog input. In addition, a pair of assignable component video inputs are available.

Analog tape loops are well accounted for with a pair of audio only outputs available. In addition, two video tape loops, with stereo audio, composite, and S-video are provided. A pair of digital audio outputs via TOSLink are also included with the VSX-56TXi

The VSX-56TXi carries the final "i" in the model designation to indicate i.Link capability. i.Link (FireWire, IEEE 1394) is a specific implementation of FireWire 1394a, which allows for the uncompressed encrypted transfer of audio streams, including high-resolution DVD-Audio and SA-CD in their native forms. Assuming you have an appropriately equipped player, a single cable can be used for the transfer of all audio instead of multiple cables. In addition, a USB Audio input, capable of accepting MP3, Windows Media Audio, and uncompressed PCM is also available.

i.Link was a bit troublesome in its operation, and I need to take a few moments out to tell you what the limitations are. When setting up the VSX-56TXi there is a menu option for SA-CD setup, which contains a parameter for SA-CD direct mode. With SA-CD direct mode off, all SA-CD material will

be played back as stereo only, but you gain the ability to use MCACC and bass management when not played back in direct mode. This is even true when playing back the multichannel tracks on surround SA-CDs. With SA-CD direct mode on, you can listen to surround SA-CD tracks, but you lose MCACC. DVD-Audio functions a little bit cleaner, likely due to the ability to directly process the PCM data. MCACC and bass management were available with 24-bit/96 kHz stereo and surround discs and 24-bit/192 kHz stereo discs. For DVD-Audio at 24-bit/48 kHz and 24-bit/96 kHz, all DSP functions were available, however, at 24-bit/192 kHz stereo discs only bass management was available. This would indicate that DSP horsepower is a limiting factor. Operating on 24-bit/192 kHz data requires four times the DSP horsepower; you have twice the samples to work with and half the time-window for the operations.

The binding posts on the VSX-56TXi are decent, though not outstanding. While it is possible to use bare wire or spade lugs, given the tight spacing of the posts the best candidate is the "good old" banana plug. This isn't a problem for me, as all my loud-speaker cables terminate with banana plugs. The spacing between plus and minus posts is at 1 inch, so attached dual banana plugs generally won't work. Once connected, the banana plugs were gripped tightly, and I never had issues with the connectors detaching accidentally.

## Digital Topology

Receivers and preamp/processors are brought to audio life by their digital stages. There are a variety of solutions available, and some of the process is in selecting the appropriate components to achieve the intended sonic goals, while not exceeding the overall sonic goal of the product. Digital to analog convertors are the last piece of the puzzle, and they are responsible for taking the output of Digital Signal Processors to convert the signal to an analog voltage, which is used to drive a power amplifier stage. In the case of the VSX-56TXi, there are four stereo DACs employed. For the first six channels (Front L/C/R, Subwoofer, Side L/R) the Asahi Kasei Microsystems AK4383 is used. The AK4383 is a maximum 8x oversampling Delta-Sigma Modulation DAC capable of decoding PCM input up to 24-bit/192 kHz, as well as natively decoding DSD (from SA-CD). Performance specs on the AK4383 indicate a THD+N of -94 dB, with a signal-to-noise ratio (S/N) of 110 dB. This approximates 19-bit performance. While not quite state-of-the-art for DAC performance, the VSX-56TXi isn't priced in the



state-of-the-art category either. The back surround channels (used only for DTS®-ES [Matrix and Discrete], DTS: Neo6, Dolby® ProLogic® IIx, and Dolby Digital Surround EX™) are handled capably by the AK4382A, which has comparable specifications to the part used for the main channels, but lacks DSD support, which is not necessary at present.

Digital Signal Processing is accomplished by a pair of Freescale (Motorola) 56367 DSP chips. The DSP56367 is a common part and is used by many in the industry. In this case, the first DSP56367 is used for traditional DSP functionality (lossy format decoding, matrix decoding, proprietary DSP fields, time alignment, bass management). The second DSP is used exclusively for MCACC, to implement the equalization system.

It is possible to apply DSP to analog inputs, and analog to digital conversion is provided by the Asahi Kasei Microsystems AK5380 ADC. The AK5380 is a stereo delta-sigma modulator ADC, with output sampling up to 24-bit/96 kHz with an S/N ratio of 106 dB and the ability to operate cleanly, even in relatively high temperature environments approaching 200 F. By sampling at 24-bit/96 kHz, this allows for high fidelity to the analog input prior to DSP application.



## Video Transcoding

A positive trend on the latest generation of receivers is the desire to simplify the vastly complicated connections that connect up to high-definition displays. You will see this marketed as upconversion in some products. Video Technical Editor Greg Rogers and I both agree that the term upconversion should only be used in cases where the product in question changes the resolution of the input signal. Most receivers are using the "U" word incorrectly and should be referring to this feature as transcoding. The VSX-56TXi has a handy video transcoding function, which definitely helps in simplifying the connections to a high-definition display. The transcoding matrix has the following results: The composite input can be output as composite, S-video, or component video. The S-video input can be output as composite, S-video, or component video. Component video inputs are passed through untouched. In testing the transcoding function, using various test patterns such as the *Video Essentials* sharpness and resolution patterns, I found no degradation of the signal. Conclusively determining the bandwidth performance of the receiver was not possible. HDTV at 1080i also passed successfully via the component input on the VSX-56TXi, although I didn't get a chance to check the HD-NET test patterns for bandwidth, sharpness, accuracy, etc.

One negative to be reported is that I expected that the On Screen Display output for system configuration, (which is nearly mandatory) would be passed through the transcoding circuitry so that it can be displayed via the single display connection. I couldn't get the OSD to synch via component video at 480i, so I still needed two cables connected, one component and one composite or S-video for configuration.

## Power To The People (And The Loudspeakers)

The power amplifier stage on the VSX-56TXi is rated at 110 watts per channel across the seven available channels while driving an 8-ohm load. The amplifier stage specifications are not clearly stated as to output for all channels driven, nor are they given for lower impedance loudspeakers. In system setup, the amplifier channels can be assigned to drive either a 7.1 system or a 5.1 system, with bi-amplified front left and right loudspeakers, or as a 5.1 Zone 1 system and a stereo system as Zone 2. All of my testing was in the context of a 5.1 system.

In an effort to test the output capacity of the VSX-56TXi, I did output testing in my primary reference room. A quick test showed that the -20 dB FS test tone on the *AVIA Guide To Home Theater* disc requires 1 watt of output from the amplifier to hit the target of 85 dB at my listening position for the front left and right loudspeakers (about 3 meters). Knowing that reference level is going to take just about all of the amplifier capability, I went off in search of appropriate material to test the output capability. Granite Audio's *Extreme System Workout* CD was used to deliver a 1 kHz tone @ 0 dB FS, and I found that with stereo signals the SPL meter was reading at 106 dB with no audible distortion from the front Left and Right loudspeakers. When switching over to five-channel stereo to reproduce the same signal across all five loudspeakers, I found some audible distortion. By backing down the volume control by 2 dB, I was able to remove the distortion.

This result indicates that (like many other receivers) the VSX-56TXi can't quite deliver rated power to all channels simultaneously. This result is also consistent with the maximum power consumption rating of 600 watts. Driving five channels at 110 watts leaves only 50 watts available to run all of the digital processing, drive the analog preamplifier stage, and radiate away amplifier inefficiency as waste heat. In fairness to Pioneer, no claim is made to drive all channels simultaneously, rather the specification is in channel groupings of Left + Right, Center, Surround Left + Right, and Back Left + Right.

## Remote Control, Set Up, And User Interface

The VSX-56TXi ships with a rather hefty and clunky remote. It definitely does the job and provides some degree of flexibility, but I found that its use was a bit unwieldy. Fortunately, I also had access to a Harmony 676 programmable remote, and my wife and stepdaughter both found the svelte Harmony remote much more to their liking. That said, the 676 is a great remote for day-to-day use and a bit less than ideal for configuration and set up.

I'm fairly particular about system setup, as I believe that every product should be able to perform basic setup (channel distance, channel trim, bass management) without a display by the end user. The limited prompts on the VSX-56TXi makes this possibility nearly impossible, and I would end up connecting a composite video cable to the secondary systems display for configuration. Once the display was connected, I found basic set up for the

VSX-56TXi to be relatively straightforward. Analog inputs are pre-assigned, so if you have a CD player with analog output that you're particularly fond of, plugging it in to the CD analog inputs is all that's necessary. The Input Assign menu is used to assign the limited digital audio and component video inputs to the appropriate inputs on the VSX-56TXi. To make life easier, I assigned TOSLink input 1 and Component Video input 1 to the Dish 6000 HDTV receiver, and Input 2 for both TOSLink and Component Video to my DVD player. The i.Link input is set up in its own dedicated menu, and I assigned the DV-59AVi to the CD input via the i.Link connector.

## Multichannel Acoustic Calibration And Correction

MCACC is Pioneer's proprietary solution for system calibration and basic room correction. MCACC was introduced a few years ago with the Elite VSX-49TX. Since its introduction, MCACC has gone through a few iterations and is now being trickled down into their mainstream products. It should be noted that there are four levels of MCACC.

For Pioneer's entry level products in the standard line, a MCACC Manual is included. Calibration tones are emitted, and the end user must then match the SPL level with the front left loudspeaker with guidance from the user interface. With the MCACC Manual, no equalization functions are available.

Automatic MCACC 1 provides a microphone, which is used to calibrate individual channel levels, set channel delays (distances), and determine whether loudspeakers should be defined as large or small. Automatic MCACC 2 adds a nine-band equalizer function, which can be applied to all loudspeakers to improve frequency response to help correct for the room and its effect on the sonics of the loudspeakers. A "front align" option leaves the front left and right loudspeakers alone, equalizing the center channel and surround loudspeakers to better match the acoustic performance of the main loudspeakers.

Advanced MCACC, which is included on the VSX-56TXi, adds a few very powerful enhancements on top of the feature set of Automatic MCACC 2. The new enhancements are categorized as the "Professional Acoustic Calibration" features. The first is that the measurements take into account your room specific reverberation and considers human hearing characteristics to help determine the optimum filters to be applied to your system. As if that weren't enough, multiple curves can be stored and



toggled through, so that you can define various filter types for movies, music, or accepting the default measured and recommended filters. The filters can be created via the "Auto Pro" option, which automatically determines the filters, or the "Manual Pro" option. The "Manual Pro" option performs all the measurements, with the end user selecting which timing target is used for filter creation. A PC can be attached to the RS-232 port and after installing the appropriate software, before and after correction curves can be shown. Last but not least, an X-Curve can be applied, which accounts for the acoustic space, and applies the curve based on best values for the room's volume. The X-Curve is used in dubbing stages and professional theatres to provide a pleasing sonic result to the ear.

I personally found little difference sonically when comparing the "front align" and "All channel EQ" options. I did, however, find that the improvements wrought by MCACC were not subtle and led to a much more pleasing sonic character than was otherwise available, and for my recorded listening impressions, I had MCACC engaged whenever possible.

## Movie Performance

A quick note about the conditions and conclusions that are being brought forth to you. I found my conclusions to be consistent between my primary reference system and my secondary reference system. All of the sonic qualities you are reading about were culled from notes taken while listening to the secondary system.

*The Shawshank Redemption* seems to be presented quite frequently on one of the high-definition movie channels, and during the review period I availed myself to a showing of this "modern classic." Here, I think that Morgan Freeman's voice is more naturally portrayed, with Tim Robbins' voice tended more towards the sibilant. It wasn't a terrible artifact, but it was consistently noticeable from scene to scene. I ran downstairs at one point to check with my primary reference system, and found that the sibilance was less apparent. As the movie draws to its conclusion and Dufresne's cell is checked and the rock goes through the Raquel Welch poster, the rock echoes as it bounces down the carved tunnel, showing how Dufresne managed his "great escape."

In *Se7en* I selected the scene where Mills and Somerset encounter John Doe in the apartment building hallway. The sound of Doe's gunshots explode onto the soundstage in a convincing facsimile of the on-screen action. Later in the scene as Doe fires at Mills from the alley, the enclosed

space of the alley causes you to wince at the loudness and its percussive attack. I can't say that I've spent a lot of time shooting firearms, and that goes double for firing them in alleys or indoors! What was really nice, though was the underlying carpet of rain throughout this scene that was omnipresent though often overshadowed by sound effects and music. The rain effect was very engulfing and well done. I wish I could do the evaluation and have an "all Morgan Freeman" set of references, but alas it was not to be for this review.

Blue Man Group's *The Complex Rock Tour Live* is a high energy presentation that I caught during the summer of 2003. I have the same complaint about this DVD-Video as I did in the concert hall. The audio is compressed to within an inch of its life! If that's the case, then why use this as a reference disc? The unique instruments are one of the reasons, the other is that it's just plain fun. Even the bonus music videos tend to suffer from too much compression. The unique signature of the backpack tubulum is well done. The majority of the body and timbre of the mallet stricken PVC tubes is played back with good fidelity. The Angel Airpole doesn't quite whip through the soundstage as well as my primary reference system, but the order of magnitude pricing differential means it shouldn't. The VSX-56TXi acquits itself quite well when considering price. The sound was never harsh, even when played as loud as my ears could handle.

## Music Performance

Starting with stereo, the VSX-56TXi doesn't quite have the width of stereo presentation as some other components I have used in my secondary reference system, including the Sunfire Ultimate Receiver. It provides only a modest bit of wraparound and not the engulfment that other products have given on the right material. Willie Nelson's *Stardust* (SA-CD via i.Link) is one that's been getting a fair amount of playing time during this review. The natural, relatively unprocessed presentation has aged well in the 25-plus years since this recording was made. Of particular note is the warmth of the lead vocal, which has a richness that pulls you into the performance, as well as an excellent portrayal of fingers on an acoustic guitar's fret board during "Moonlight In Vermont." Last but not least, the plaintive call of the harmonica is also well portrayed. Quite convincing, although it doesn't reach the level of "in your room" presence that I hear in the primary reference system.

Soundstage width is good overall and outstanding for the price point. I pulled out

a guilty pleasure disc, *Kenny Loggins' Greatest Hits* on stereo SA-CD for this review, where track two can have a very convincing pseudo-surround presentation at its best. The VSX-56TXi delivered a soundstage whose apparent width exceeded the placement of the loudspeakers but doesn't tend to deliver that wraparound effect that happens with the best out there. Between the speakers, placement is clear and precise, with the two points in space for Loggins' and Nicks' voice correctly located between the loudspeakers.

Diana Krall's *The Girl In The Other Room* is her latest effort and is a return back to the more traditional jazz quartet, instead of the "Diana With Strings" format she's had for the last few discs. There are several outstanding tracks, with the two-beat Latin feel of Joni Mitchell's "Black Crow" (Track 8) being one of my favorites. Here, the richness of the electric guitar (Anthony Wilson) is always found. In addition, during his improvisation work, the individual notes of some blistering double time runs are still played back with good clarity and precision. Krall's voice retains the slight breathiness and her sometimes excessive sibilance—ably demonstrated when she sings the word shiny. The acoustic piano is well done, and the various percussion instruments utilized are all cleanly portrayed in their own space. "Narrow Daylight" (Track 9) is a more intimate presentation, and the warmth of the VSX-56TXi is keenly noticeable on the vocals presented. With both of these presentations, I felt the absence of MCACC (not available with multichannel SA-CD), as there was some excess reverberation in the 60 Hz region where the acoustic bass would have particular notes bloom.

Steely Dan's *Gaucho* was their last album released prior to a 20-year hiatus and their jump to a new record label. The title track begins with the tenor sax of Tom Scott, and the VSX-56TXi does a good job of preserving the slightly congested tonal quality of this particular track. It's still a very good auditioning track, and the various elements on the masterfully mixed disc by Elliot Scheiner are effectively presented in 24-bit/96 kHz surround. Of particular note is the body and weight of the mass vocals for the chorus and the distinctive style of Fagan's electric piano. I'm not sure how he manages to pull off nonchalance, while still hitting the rhythmic marks time and time again.

For overall surround soundstage integration, I turned to the Flaming Lips' *Yoshimi Battles The Pink Robots*. The track "Do You Realize" should provide a fully-immersive holosonic™ soundfield with complete rotation of the mix around the listening position.





Here, I found that the VSX-56TXi did a very good job of keeping the stage coherence together. I found that there was only the usual small gap between front and surround hemispheres, indicating excellent overall presentation, as well as good linearity between the various pieces required to deliver this track correctly.

As a closing listen, I went to one of the best big band discs in my collection, the Bob Mintzer Big Band's *Homage To Count Basie*. "One O'Clock Jump" is a killer blues track, which builds from start to finish and features an ambient mix with only ambience information in this quadraphonic (4.0) mix. As accent chords are hit by the band on a

piano solo chorus, the attack in front, with decay in all loudspeakers, provided an excellent peak into what the sound was like at the recording. Also of note was the presentation of the alto sax solo, which has a deliberately overblown timbre. I'm not a fan of this approach, but I also wasn't hired to play the part! That said, the presentation from small combo to tutti shout choruses is well done both by the recording and the VSX-56TXi. It is easy to have timbre breakdown with denser passages, and the VSX-56TXi managed to come through this particular text with nary a scratch on the Urishi black exterior.

## Conclusion

Pioneer's VSX-56TXi is indicative of the progress that has been made in the last several years in the audio side of the home theatre market. This \$1,700 product does an outstanding job, with performance that would have been considered high-end several years ago. Its warm, rich sonic signature does an excellent job in conveying the message rather well. The flaws in the VSX-56TXi lie in its operational issues far more than in its sonic attributes. With some user interface polishing, the few rough spots could be dramatically improved. ■

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